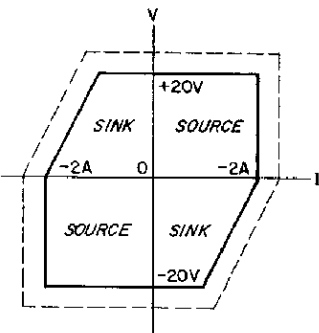


Table 1-1. Specifications, Model 6825A

GENERAL SPECIFICATIONS	
<p><b>Input Power:</b> 104-127/208-254Vac (switchable), 48-63Hz, 1.0A, 150W</p> <p><b>Meters:</b> Individual voltage and current meters. DC accuracy is 3% of full scale. AC accuracy is 5% of full scale with sinusoidal, 100Hz input.</p> <p><b>Meter Ranges (DC):</b> <math>\pm 2.4V</math>, <math>\pm 24V/\pm 0.24A</math>, <math>\pm 2.4A</math></p> <p><b>Meter Ranges (AC):</b> 1.6V (uncal), 16V rms/0.16A rms, 1.6A rms</p> <p><b>Temperature Ratings:</b> Operating: 0 to 55°C. Storage: -40 to +75°C.</p> <p><b>Cooling:</b> Convection cooling is employed. The supplies have no moving parts.</p> <p><b>Dimensions:</b> See outline diagram, Figure 2-1.</p> <p><b>Weight:</b> 18 lbs. (8.2 kg.) net, 21 lbs. (9.5 kg.) shipping.</p>	<p><b>Source Effect (Line Regulation) Continued:</b> Voltage (X1 Range): .01% + .2mV Voltage (X4 Range): .01% + 2mV Current: .01% + 250<math>\mu</math>A</p> <p><b>PARD (Ripple and Noise):</b> Rms/p-p (20Hz to 20MHz) at any line voltage and under any load condition within rating. Voltage (X1 Range): 1.5mV rms/4mV p-p Voltage (X4 Range): 5mV rms/15mV p-p Current: 3mA rms/10mA p-p</p> <p><b>Temperature Coefficient:</b> Output change per degree Centigrade change in ambient following 30 minutes warm-up. Voltage (X1 Range): .01% + .35mV Voltage (X4 Range): .01% + 1.5mV Current: .02% + 100<math>\mu</math>A</p> <p><b>Drift (Stability):</b> Change in output (dc to 20Hz) over 8 hour interval under constant line, load, and ambient following 30 minutes warm-up. Voltage (X1 Range): .03% + 1mV (Pot wiper jump effect may add 5mV) Voltage (X4 Range): .03% + 5mV (Pot wiper jump effect may add 50mV) Current: .1% + 200<math>\mu</math>A (Pot wiper jump effect may add 1.5mA)</p>
POWER SUPPLY SPECIFICATIONS	
<p><b>DC Output:</b> Voltage and current spans indicate range over which output may be varied. X1 Range: -5V to +5V, 0 to 2.0A X4 Range: -20V to +20V, 0 to 2.0A</p> <p><b>Load Effect (Load Regulation):</b> Voltage load effect is given for a load current change equal to the current rating of the supply. Current load effect is given for a load voltage change equal to the voltage rating of the supply. Voltage (X1 Range): 0.01% + .1mV Voltage (X4 Range): 0.01% + .5mV Current: .01% + 250<math>\mu</math>A</p> <p><b>Source Effect (Line Regulation):</b> For a change in line voltage between 104 and 127Vac/208 and 254Vac at any output voltage and current within rating.</p>	<p><b>Load Effect Transient Recovery (Load Transient Recovery):</b> Time required for output voltage recovery to within the specified level of the nominal output voltage following a change in output current equal to the current rating of the supply: 100<math>\mu</math>sec is required for output voltage recovery within 20mV of nominal output voltage.</p> <p><b>Resolution:</b> Typical output voltage or current change that can be obtained using front panel controls. Voltage (X1 Range): 10mV Voltage (X4 Range): 40mV Current: 3mA</p> <p><b>Output Impedance (Typical to 50kHz):</b> Approximated by a resistance in series with an inductance (constant voltage operation). .5m<math>\Omega</math> &amp; 1.5<math>\mu</math>H</p>

Table 1-1. Specifications, Model 6825A (Continued)

POWER SUPPLY SPECIFICATIONS (Continued)	
<p><b>DC Output Isolation:</b> Supply may be floated at up to 300V above ground.</p> <p><b>Remote Resistance Programming:</b> Resistance Coefficient: Voltage (X1 Range): <math>2000\Omega/V \pm .1\%</math> Voltage (X4 Range): <math>500\Omega/V \pm .1\%</math> Current: <math>5\Omega/\text{mA} \pm .1\%</math></p> <p><b>Remote Programming Speed:</b> 50<math>\mu\text{sec}</math> are required to change between 1% and 99% of the maximum + and - voltage limits.</p> <p><b>Remote Programming Temperature Coefficient:</b> Output change per degree Centigrade change in ambient using an external control resistor (<math>R_F</math>) at output voltage (<math>V_O</math>) or current (<math>I_O</math>). % T.C. <math>R_F</math> is the temperature coefficient of the control resistance <math>R_F</math>. Voltage (X1 Range): <math>.25\text{mV} + .007\% (V_O) + \% \text{ T.C. } R_F (V_O + 5)</math> Voltage (X4 Range): <math>1\text{mV} + .007\% (V_O) + \% \text{ T.C. } R_F (V_O + 20)</math> Current: <math>.016\% (I_O) + 33\mu\text{A} + \% \text{ T.C. } R_F (I_O)</math></p> <p><b>Sink Current Compliance:</b> Maximum current that the supply can sink when connected to an active load.</p>  <p>Sink current is limited to a value ranging linearly from 2A @ 0V to 1A @ 20V. Externally applied voltages to output terminals in excess of 25V could damage the instrument.</p>	<p><b>Voltage Gain (High/Low Range):</b> Fixed Amplifier (Inverting): 4X (high range)/ 1X (low range) Variable Gain (Non-Inverting): 0-8 (high range)/ 0-2 (low range)</p> <p><b>Frequency Response (+1, -3dB at full output):</b> Fixed Gain: dc - 40kHz Variable Gain: dc - 15kHz</p> <p><b>Distortion:</b> Total harmonic distortion is .1% (maximum) at 100Hz and full output.</p> <p><b>Input Impedance:</b> 10K<math>\Omega</math> (Typical)</p> <p><b>Fixed Gain Accuracy (at 100Hz):</b> Low Range (X1): .1% + .5mV High Range (X4): .1% + 2mV</p> <p><b>Remote Resistance Programming Variable Gain (<math>A_V</math>):</b> <math display="block">A_V = \frac{K R_F}{10.24 \times 10^3 \Omega}</math>where K is the constant indicated and <math>R_F</math> is the external control resistance. <math display="block">A_V \text{ at low range (X1): } \frac{R_F}{10.24 \times 10^3}</math> <math display="block">A_V \text{ at high range (X4): } \frac{4R_F}{10.24 \times 10^3}</math></p> <p><b>Variable Gain Accuracy:</b> Accuracy in high range at 100Hz using an external control resistance (<math>R_F</math>) at output voltage (<math>V_O</math>). % <math>R_F</math> is the accuracy of the control resistance <math>R_F</math>. (.05% + % <math>R_F</math>) <math>V_O + 2.5\text{mV}</math></p> <p><b>Remote Voltage Control Coefficient:</b> Fixed gain amplifier mode, voltage coefficient: Voltage (X1 Range): 1 volt/volt <math>\pm .1\%</math> Voltage (X4 Range): 4 volts/volt <math>\pm .1\%</math></p> <p>Variable gain amplifier mode (VOLTAGE control fully clockwise), voltage coefficient: Voltage (X1 Range): 2 volts/volt <math>\pm .1\%</math> Voltage (X4 Range): 8 volts/volt <math>\pm .1\%</math></p> <p>Constant Current, voltage coefficient (the following applies to variable gain amplifier, fixed gain amplifier, and power supply modes of operation): 2 amperes/volt <math>\pm .5\%</math></p>
POWER AMPLIFIER SPECIFICATIONS	
<p><b>Output:</b> Voltage (X1 Range): 10V p-p Voltage (X4 Range): 40V p-p Current: 2A peak</p>	

## 1-14 OPTIONS

1-15 Options are customer-requested factory modifications of a standard instrument. The option described below applies to Model 6825A.

<u>Option No.</u>	<u>Description</u>
007	<u>Ten-turn Output Voltage Control:</u> Replaces standard single-turn voltage control to allow greater resolution in setting the output voltage of supply.

## 1-16 ACCESSORIES

1-17 The accessories listed in the following chart may be ordered with the instrument or separately from your local Hewlett-Packard sales office (refer to list at rear of manual for addresses).

<u>HP Part No.</u>	<u>Description</u>
5060-8762	Dual Rack Adapter: Kit for rack mounting one or two supplies in standard 19-inch rack.
5060-8760	Blank Panel: Filler panel to block unused half of rack when mounting only one supply.
11057A	Carrying handle easily attached for portability and handling convenience.
1052A	Combining Case for mounting one or two units in standard 19-inch rack.
5060-0789	Cooling kit for above combining case, 115 Vac, 50-60Hz.
5060-0796	Cooling kit for above combining case, 230 Vac, 50-60Hz.

## 1-18 INSTRUMENT IDENTIFICATION

1-19 Hewlett-Packard power supplies are identified by a three-part serial number. The first part is the power supply model number. The second part is the serial number prefix, consisting of a number-letter combination denoting the date of a significant design change and the country of manufacture. The first two digits indicate the year (12 = 1972, 13 = 1973, 20 = 1980, etc.); the second two digits indicate the week (01 through 52); and the letter "A", "G", "J", or "U" designates the U.S.A., West Germany, Japan, or the United Kingdom, respectively, as the country of manufacture. The third part is the power supply serial number; a different 5-digit sequential number is assigned to each power supply, starting with 00101.

1-20 If the serial number prefix on your unit does not agree with the prefix on the title page of this manual, change sheets supplied with the manual or manual backdating changes in Appendix A define the differences between your instrument and the instrument described by this manual.

## 1-21 ORDERING ADDITIONAL MANUALS

1-22 One manual is shipped with each instrument. Additional manuals may be purchased from your local Hewlett-Packard field office (see list at rear of this manual for addresses). Specify the model number, serial number prefix, and HP part number shown on the title page.